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MOLECULARGRIP – FUNCTIONAL PLASMA COATINGS FOR HIGH-PERFORMANCE ADHESION IN R2R APPLICATIONS

ABSTRACT
The innovative coating technology uses cold, atmospheric plasma to covalently bond organic precursors to any substrate material. The resulting nanocoating is applied in a single-step, dry, and solvent-free process, providing the surface with a precisely defined functionality. The key differentiator of the technology is its ability to process a wide range of chemical precursors across the full spectrum of organic chemistry, allowing the creation of highly tailored surface functionalities.

MolecularGRIP represents a significant advancement in solvent-free surface pre-treatment for high-performance bonding applications. Through the application-specific selection of functional molecules, it enables customized solutions for a wide variety of material combinations. The objective is to provide sustainable and efficient solutions, even for highly demanding applications, to replace wet-chemical, solvent-based priming processes and, in many cases, exceeding existing technical limits.

Besides the PlasmaSpot system for treating rather small areas, fibres or 3D gemometries, the linear PlasmaLine system enables the continuous roll-to-roll processing of flexible material in standard web widths. As a single-step and dry coating process, it eliminates the need for complex infrastructure related to solvent and VOC handling as well as post-coating curing. Furthermore, an integrated vision system enables 100% inline quality control using UV tracer molecules embedded within the functional coating. In addition, the integrated vision system enables a 100 % inline quality control via UV tracer molecules embedded in the functional coating.
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